RAID: Redundant Array of Inexpensive/Independent Disks

The main idea

Disks Fail. We want to survive disk failures, without losing data.

The main idea

Use **extra disks**, **mirroring**, and **striping**.

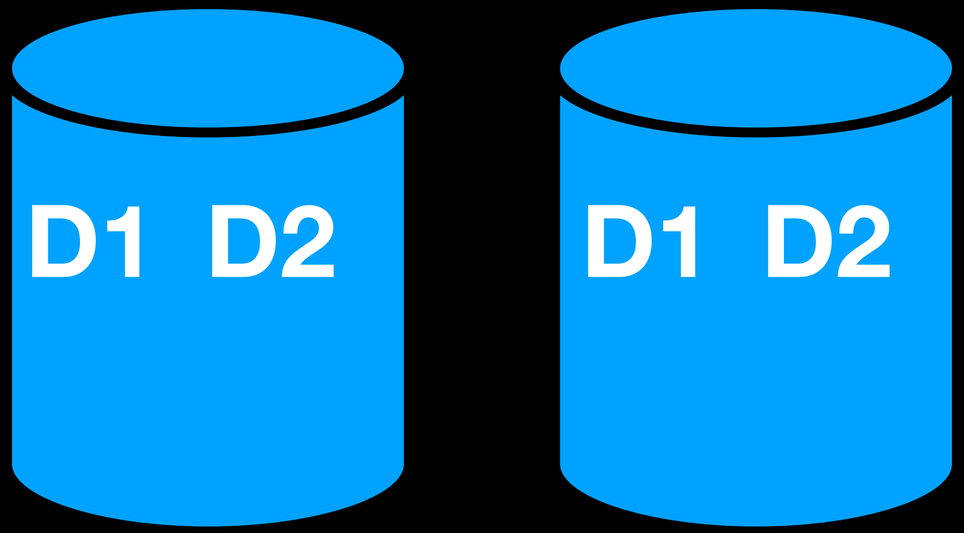
RAID “levels” — different variants with different properties.

RAID 0

Just striping — make many disks look like one big disk.

RAID 1

Just mirroring — backup.



RAID 2

Bit-level striping + Hamming Code Parity
(Historical. Not used today)

RAID 3

Byte-level striping + Dedicated Parity

Parity

Add an extra bit.

Data bits	Parity bit
0 1 0 0	**1 (even parity)**
	0 (odd parity)

RAID 4

Block-level striping + Dedicated Parity

RAID 5

Block-level striping + Distributed Parity

RAID 6

Just like RAID 5, but with double distributed parity, and using Reed Solomon Codes
(So, we can lose two disks and still recover)